UMASS/AMHERST
312066 0270 7565 5

Digitized by the Internet Archive
in 2013

http://archive.org/details/technologyinmas198687mass

ass. ED52.2: T22/(1986/87) - 1986-87 5

# Technology in the Massachusetts Classroom

## A Summary of Chapter 188 Educational Technology Grants and Title II Exemplary Programs Using Technology

(1986-1987)

FEB 03 1988

1987

Massachusetts Department of Education
Bureau of Educational Technologies
Bureau of School Programs

**Massachusetts Board of Education**

James F. Crain, Gloucester, *Chairperson*
Joseph E. Killory, Sandwich, *Vice Chairperson*

Raquel Bauman, Holden
James R. Grande, Hanover
Sol Kolack, Newton
Anne S. Larkin, Bedford
Melissa M. McNally, Cambridge
Loretta L. Roach, Boston
Mary Ellen Smith, Boston
Theodora A. Sylvester, Springfield
Frances M. Turner, South Egremont
Mary C. Wright, Falmouth

Harold Raynolds, Jr., *Commissioner of Education, Secretary*

Franklyn G. Jenifer, *Chancellor,* Board of Regents, Ex Officio

**Bureau of Educational Technologies—Dissemination Project Staff**
Susan Foote, *Instructional Technology Coordinator*
Susan Hargrave, *Communications Coordinator*
Connie Louie, *Instructional Computing Specialist*
Bob Tucker, *Instructional Technology Consultant*

**Bureau of School Programs—Title II Dissemination Staff**
Barbara Krysiak, *Bureau Director*
Jack Reynolds, *Title II Massachusetts Coordinator*
Felicia Tsang Lee, *Consultant in Mathematics and Science Education*

Produced by the Bureau of Operational Support
Cecilia DiBella, *Director*
Susan Gardner, *Publications/Communications Coordinator*
Susan M. Stille, *Typographist*

This information was prepared by the staffs of the Bureau of Educational Technologies and the Title II Dissemination Project, both services of the Massachusetts Department of Education. This document may be reproduced in whole or in part for non-profit use with appropriate credit.

The Massachusetts Department of Education insures equal employment/educational opportunities/affirmative action regardless of race, color, creed, national origin or sex, in compliance with Title VI and Title IX, or handicap, in compliance with section 504.

*Publication #15013 Approved by Daniel D. Carter, State Purchasing Agent.*

Harold Raynolds, Jr., Commissioner of Education

The Commonwealth of Massachusetts
Department of Education

1385 Hancock Street, Quincy, Massachusetts 02169-5183

Dear friends,

We are glad to provide this booklet which describes a variety of programs demonstrating the use of technology for instruction. These programs were administered by two bureaus of the Massachusetts Department of Education: the Bureau of Educational Technologies and the Bureau of School Programs.

The Bureau of Educational Technologies operates the Chapter 188 Educational Technology Grants Program. These grants are awarded by the Board of Education. The purpose of the grant program is to develop and implement projects that use technology as a tool for learning and to encourage model projects that may be replicated or disseminated to other school districts. We wish to acknowledge the Department's Technology in Instruction (TII) Committee for assisting schools in planning these significant projects.

The Bureau of School Programs administers federal monies from Title II of the Education for Economic Security Act (E.E.S.A.). The purpose of Title II is to support the dissemination of exemplary programs in Massachusetts, and to encourage adoption of these programs by other school districts.

Special thanks are due to members of the Educational Technology Advisory Council and the Title II Dissemination Advisory Committee for their generous contributions of expertise, time and energy.

We take pride in the wealth of activity and talent described here. We wish to express appreciation to the many teachers, administrators, and parents, whose efforts enrich the educational experience for students across the Commonwealth.

Harold Raynolds Jr

Harold Raynolds, Jr.
Commissioner of Education

# Table of Contents

Page

vi Index of Projects by Geographic Location

viii Index of Projects by Curriculum Area

**PROJECTS CONDUCTED BY LOCAL SCHOOL DISTRICTS**

1 Abington
The Computer as a Classroom Aid in Science

2 Amherst
A Non-Algebra Sequence (Limited English Proficiency)

3 Barnstable
Computer Based Mini-Environments

4 Bedford
Conflict Resolution: An Interschool Network to Train Tomorrow's Leaders

5 Belmont
Integrating the Computer with Consumer Mathematics

6 Boston
Achieving Excellence Through Technological Application

7 Boston
Math Through Instructional Gaming

8 Boston
TEACHNET

9 Brookline
Seventh Grade Connection

10 Bourne (Cape Cod Consortium)
Technologies Application Planning Process

11 Boxford
An Action Plan to Integrate Computers into the Regular Curriculum

12 Cambridge
School of the Future

13 Dover
The Computer—Another Learning Tool

14 Dracut
Comprehensive Computer Science Program

15 Easthampton
Easthampton Telecommunication Program

16 Fairhaven
Project Marsh

17 Hingham
Project WRITE

18 Holliston
Early Childhood Technology Evaluation Grant

19 Holyoke
Supposing in Geometry and Algebra

20 Lawrence
Project TECH

21 Lunenburg
Project WRITE

22 Marblehead
Planning for Television: Marblehead Public Schools and Cable

23 Peabody
Using the Computer as an Instructional Tool

24 Reading
Interactive Video Classroom

25 Rockland
Electronic Networking as a Classroom Resource

26 Salem
PALS High School Literacy Program

27 Shrewsbury
Using High-Tech Research Tools

28 Union 47 (Bolton, Stow)
Computer Instruction Program

29 Union 61 (Brimfield, Brookfield, Holland, Sturbridge, Tantasqua, Wales)
Project ECHO

30 Walpole
Project POWER

31 Watertown (EdCo Educational Collaborative)
Collaborative Technology Integration Project for the Middle School Curriculum

32 Wellesley
Computer as a Tool

33 Westfield
Integrating Technology in a Middle School Curriculum

34 Westwood
Computer Applications and Telecommunications in the Curriculum

35 Williamstown
Telecomputing in School

**PROJECTS CONDUCTED BY REGIONAL SCHOOL DISTRICTS**

36 Lincoln-Sudbury Regional School District
Project VCR

37 Minute Man Vocational Technical School District
Microcomputers in Small Business

38 Norfolk County Agricultural School District
Project CERES

**PROJECTS CONDUCTED BY COLLABORATIVES**

39 Merrimack Education Center
New Technology Applications in Math and Science Education

40 South Berkshire Educational Collaborative
Interactive Telecommunications

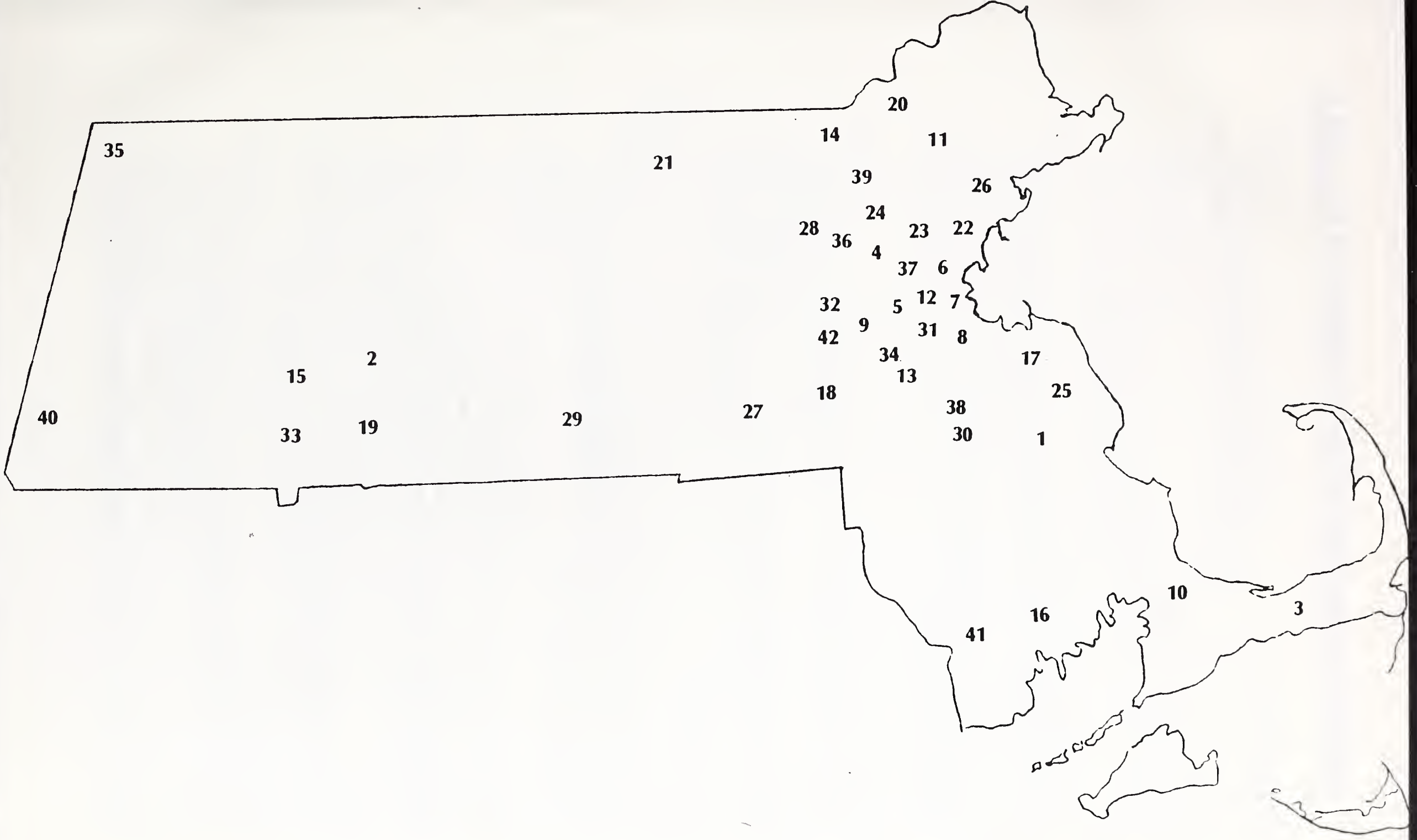
41 South Coast Educational Collaborative
Database Technology as a Curriculum Tool

42 The Education Cooperative
Distance Learning Project

# Index of Projects by Geographic Location

1 Abington
2 Amherst
3 Barnstable
4 Bedford
5 Belmont
6 Boston
7 Boston
8 Boston
9 Brookline
10 Bourne (Cape Cod Consortium)
11 Boxford
12 Cambridge
13 Dover
14 Dracut
15 Easthampton
16 Fairhaven
17 Hingham
18 Holliston
19 Holyoke
20 Lawrence
21 Lunenburg
22 Marblehead
23 Peabody
24 Reading
25 Rockland
26 Salem
27 Shrewsbury
28 Union 47 (Bolton, Stow)
29 Union 61 (Brimfield, Brookfield, Holland, Sturbridge, Tantasqua, Wales)
30 Walpole
31 Watertown
32 Wellesley
33 Westfield
34 Westwood
35 Williamstown
36 Lincoln-Sudbury Regional School District
37 Minute Man Vocational Technical School District
38 Norfolk County Agricultural School District
39 Merrimack Education Center
40 South Berkshire Educational Collaborative
41 South Coast Educational Collaborative
42 The Educational Cooperative

NOTE: The numbers on the map also refer to page numbers in this booklet.


20
14
11
35
21
39
26
24
28
36
23
22
4
37
6
12
7
32
5
9
31
8
42
34
17
2
15
13
25
18
38
40
27
29
19
33
30
1
10
3
16
41

# INDEX OF PROJECTS BY CURRICULUM AREA


**Arts (Visual/Performing)**

Collaborative Technology Integration Project for the Middle School Curriculum—p. 31

**Business Management**

Microcomputers in Small Business—p. 37

**Classics**

Distance Learning Project—p. 42

**Computer (programming)**

Grades K-5
- Computer Instruction Program—p. 28
- School of the Future—p. 12
- The Computer—Another Learning Tool—p. 13

Grades 6-8
- Achieving Excellence Through Technological Application—p.6
- Computer Instruction Program—p. 28

Grades 9-12
- Comprehensive Computer Science Program—p. 14
- Integrating the Computer with Consumer Mathematics—p. 5

**Curriculum Development**

Grades K-5
- An Action Plan to Integrate Computers into the Regular Curriculum—p. 11
- Database Technology as a Curriculum Tool—p. 41
- Planning for Television: Marblehead Public Schools and Cable—p. 22
- Technologies Application Planning Process—p. 10
- Telecomputing in School—p. 35

Grades 6-8
- Database Technology as a Curriculum Tool—p. 41
- New Technology Applications in Math and Science Education—p. 39
- Planning for Television: Marblehead Public Schools and Cable—p. 22
- Technologies Application Planning Process—p. 10
- Telecomputing in School—p. 35

Grades 9-12
- Database Technology as a Curriculum Tool—p. 41
- Interactive Telecommunications—p. 40
- New Technology Applications in Math and Science Education—p. 39
- Planning for Television: Marblehead Public Schools and Cable—p. 22
- Project POWER—p. 30
- Technologies Application Planning Process—p. 10
- Telecomputing in School—p. 35

**Foreign Language**

Computer Applications and Telecommunications in the Curriculum—p. 34
Project VCR—Video Classroom Resource—p. 36

**Language Arts**

Grades K-5
Computer Instruction Program—p. 28
Early Childhood Technology Evaluation Grant—p. 18
Project ECHO—p. 29
Project WRITE—p. 17
Project TECH—p. 20
School of the Future—p. 12
The Computer—Another Learning Tool—p. 13
Using the Computer as an Instructional Tool—p. 23

Grades 6-8
Achieving Excellence Through Technological Application—p. 6
Computer Applications and Telecommunications in the Curriculum—p. 34
Computer Instruction Program—p. 28
Electronic Networking as a Classroom Resource—p. 25
Integrating Technology in a Middle School Curriculum—p. 33
Seventh Grade Connection—p. 9
Using High-Tech Research Tools—p. 27

Grades 9-12
Computer as a Tool—p. 32
Microcomputers in Small Business—p. 37
PALS High School Literacy Program—p. 26
Project CERES—p. 38
Project POWER—p. 30
Project WRITE—p. 21
Using High-Tech Research Tools—p. 27

**Mathematics**

Grades K-5
Computer Instruction Program—p. 28
Math Through Instructional Gaming—p. 7
School of the Future—p. 12
TEACHNET—p. 8
The Computer—Another Learning Tool—p. 13
Using the Computer as an Instructional Tool—p. 23

Grades 6-8
A Non-Algebra Sequence—p. 2
Collaborative Technology Integration Project for the Middle School Curriculum—p. 31
Computer Applications and Telecommunications in the Curriculum—p. 34
Electronic Networking as a Classroom Resource—p. 25
Integrating Technology in a Middle School Curriculum—p. 33
New Technology Applications in Math and Science Education—p. 39
Project TECH—p. 20

Grades 9-12
A Non-Algebra Sequence—p. 2
Computer as a Tool—p. 32
Integrating the Computer with Consumer Mathematics—p. 5
Microcomputers in Small Business—p. 37
New Technology Applications in Math and Science Education—p. 39
Project TECH—p. 20
Supposing in Geometry and Algebra—p. 19

**Science**

Grades K-5
Project Marsh—p. 16
School of the Future—p. 12

Grades 6-8
Achieving Excellence Through Technological Application—p. 6
Computer Based Mini-Environments—p. 3
Collaborative Technology Integration Project—p. 31
Electronic Networking as a Classroom Resource—p. 25
Integrating Technology in a Middle School Curriculum—p. 33
New Technology Applications in Math and Science Education—p. 39
Computer Applications and Telecommunications in the Curriculum—p. 34
The Computer as a Classroom Aid in Science—p. 1
Using High-Tech Research Tools—p. 27

Grades 9-12
New Technology Applications in Math and Science Education—p. 39
The Computer as a Classroom Aid in Science—p. 1
Using High-Tech Research Tools—p. 27

**Social Studies**

Grades K-5
School of the Future—p. 12

Grades 6-8
Achieving Excellence Through Technological Application—p. 6
Conflict Resolution: An Interschool Network to Train Tomorrow's Leaders—p. 4
Electronic Networking as a Classroom Resource—p. 25
Integrating Technology in a Middle School Curriculum—p. 33
Computer Applications and Telecommunications in the Curriculum—p. 34
Using High-Tech Research Tools—p. 27

Grades 9-12
Computer as a Tool—p. 32
Project POWER—p. 30
Project VCR—Video Classroom Resource—p. 36
Using High-Tech Research Tools—p. 27

**Video Production**

Grades K-5
Easthampton Telecommunication Program—p. 15
Planning for Television: Marblehead Public Schools and Cable—p. 22

Grades 6-8
Easthampton Telecommunication Program—p. 15
Planning for Television: Marblehead Public Schools and Cable—p. 22

Grades 9-12
Easthampton Telecommunications Program—p. 15
Interactive Video Classroom—p. 24
Planning for Television: Marblehead Public Schools and Cable—p. 22
Project VCR—Video Classroom Resource—p. 36

# The Computer as a Classroom Aid in Science

# Abington

**Curriculum areas:**
all

**Grade levels:**
7 through 12

**Equipment:**
26-inch color monitor, dot matrix printer, 15 TRS-80 computers, 1 Apple computer, audiovisual cart

**Materials:**
earth science series, miscellaneous applications software, cables, notebooks

**Personnel:**
project director and a consultant

**Description:**
Three full-day workshops were held with release time for science teachers and interested staff members. Workshops consisted of instruction in the use of the TRS-80, application programs, and teacher use of these programs for individual projects. Included in the workshop was a demonstration of how an Apple computer, together with a large screen monitor, could be used as a teaching aid. Teachers investigated specific software programs for use in their classrooms and prepared sample lessons.

**Objectives:**
1. To enable teachers to use specific hardware/software configurations and plan curriculum-related lessons.
2. To enable teachers to assess the impact of the project on students' learning.

**Procedure:**
Although this project did not involve students directly, they will benefit from the increased teacher use of the technology to convey abstract concepts and difficult conceptual models.

**Recommendations:**
The project can easily be adapted to include any group of teachers. To be effective, the project requires that teachers have access to a computer and a printer throughout the workshop. The amount of time allotted for the workshop is also important; a five-day program offered at the end of the summer would probably be best.

**Materials available:**
TRS-80 operating instructions (for loan)

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Mr. Joseph Potoczak
Frolio School Bldg.
Washington St.
Abington, MA 02351
(617) 871-0444

# A Non-Algebra Sequence (Limited English Proficiency)

## Amherst

**Curriculum areas:**
mathematics, English as a second language

**Grade levels:**
9 through 12

**Equipment:**
Apple IIe and TRS-80 model III/4 computers

**Materials:**
commercial and locally written software

**Personnel:**
teachers, bilingual personnel for limited English speakers

**Description:**
The non-algebra sequence was started in Amherst in 1979, in response to the need for strategies to work with a large population of second-language speakers. Currently, the majority of these students are refugees from Cambodia and Vietnam. These students range in age from 14 to 23. Some of them never had formal schooling before coming to America.

**Objectives:**
To meet the need of remedial high school mathematics students by providing the following: a thorough grounding in basic skills, exposure to computer technology, and coursework in the areas of career and consumer math.

**Procedure:**
On a daily basis, students use materials developed by the two teachers. The lessons in the first two courses in the non-algebra sequence are oriented toward the teaching of the language of mathematics and the internalization of the basic concepts of elementary math. There is an emphasis on review that might not be necessary for students who are learning in their native language.

**Recommendations:**
The program's most significant benefit is that it has built students' confidence, by making it possible for them to succeed and understand the material. The non-algebra sequence can serve many other student populations, such as math-anxious or phobic students who have intelligence but little confidence, deaf students, disabled students, dyslexics, and other students who simply are not interested in mathematics.

**Materials available:**
BASIC programs that we developed, which incorporate a great deal of arithmetic-level problem solving and programming practice for limited-English speakers

**Grant type:**
EESA Title II Dissemination Grant

**Contact:**
Michael Froning or June Wilby
Amherst-Pelham Regional High School
21 Mattoon Street
Amherst, MA 01002
(413) 549-3710

# Computer-Based Mini-Environments

# Barnstable

**Curriculum areas:**
earth science, marine biology, ecology

**Grade levels:**
7 and 8

**Equipment:**
Apple computers, saltwater aquarium, probes

**Materials:**
marine animals, collection equipment, Appleworks software, probe-based software

**Personnel:**
consultants from the Lloyd Center for Environmental Research

**Description:**
Computer-monitored aquarium tanks were set up in each science teacher's classroom. These mini-environments duplicate different ecosystems such as a salt marsh, estuary, deep ocean, or other ecosystems found both on and off Cape Cod. Working with the mini-environments, students monitor variables such as temperature, salinity, pH, and oxygen in order to better understand the impact that these variables have on their environments.

**Objectives:**
1. To enable teachers to utilize the minienvironment as an instructional tool.
2. To enable students to describe how the mini-environments function in order to maintain specific ecosystems.
3. To enable students to describe how technology can be used to aid scientific investigation.
4. To enable students to use the mini-environments as vehicles for comparisons.
5. To enable students to predict the impact of significant factors on the Cape Cod environment.

**Recommendations:**
We hope that our project can serve as a model for other schools to replicate.

**Materials Available:**
Instructional activities involving mini-environments for regular classrom use

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Rick Bidgood
Barnstable Middle School
895 Falmouth Rd.
Hyannis, MA 02601
(617) 771-4600

# Conflict Resolution: An Interschool Network to Train Tomorrow's Leaders

## Bedford

**Curriculum areas:**
gifted and talented program, life skills, computer education, social studies

**Grade levels:**
5 through 8

**Equipment:**
Apple IIe computers

**Materials:**
The Other Side software, other computer simulation software

**Personnel:**
gifted and talented teacher, computer specialist, special education teacher

**Description:**
This project involved using simulations with elementary school students for the purpose of developing leadership, negotiation, and group process skills. The students involved were from the gifted and talented program and from special needs classes.

**Objectives:**
1. To develop and enhance the leadership, negotiation, and group process skills of the students involved.
2. To increase students' experience with computer applications.

**Procedure:**
Working with three separate groups (two elementary gifted and talented groups and one middle school special needs group), we introduced simulations both on and off the computer. We provided instruction and projects in group process, leadership skills, and problem solving. The final eight weeks were spent applying and further developing these skills, along with negotiation skills, while playing The Other Side in various configurations of groups.

**Recommendations:**
All students involved were highly motivated by this project. On several occasions they voluntarily stayed after school to complete The Other Side games. The concept of "playing" with groups located in other buildings was particularly intriguing and added to the motivation.

This program is flexible both in terms of application (grade 5 and up) and equipment needed. It could easily be used by one teacher in one classroom with one computer. The networking ability adds a further dimension but it is not required. It provides an effective, motivating way to present life skills training that is otherwise difficult to provide within the basic curriculum.

**Materials available:**
videotapes of classroom activities (These were produced mainly to help our school personnel observe and evaluate the activities.)

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Cathy Cordes/Jane Franklin
Davis Elementary School
Davis Road
Bedford, MA 01730
(617) 275-6804

# Integrating the Computer with Consumer Mathematics

## Belmont

**Curriculum areas:**
consumer mathematics, general mathematics

**Grade levels:**
10 through 12

**Equipment:**
Apple IIe computers

**Materials:**
disks for each student

**Personnel:**
classroom teacher, resource room (special education) teacher

**Description:**
This program is designed for students who have special needs and for those who have failed the Basic Skills Test. This program is beneficial for students who have difficulties dealing with mathematical concepts or logic, because the process of writing a computer program provides practice in problem solving.

**Objectives:**
1. To provide opportunities for students to write programs for the microcomputer, as a means of increasing their problem-solving ability.
2. To remove the usual fears surrounding the use of personal computers.
3. To reduce students' math anxiety by giving them a method of attacking problems.

**Procedure:**
1. The teacher who designed the curriculum also teaches the class. Another teacher, in special education, helps the students during class and when they study later on in the Learning Center, providing reinforcement whenever and wherever possible.
2. There are two essential parts of the curriculum: a comprehensive textbook on survival mathematics and student-generated computer programs in BASIC that are used to solve the problems in the textbook.
3. At mid-year and at the end of the year, each student is given a problem to solve by writing a computer program. This form of evaluation is used to replace the more common examinations.

**Recommendations:**
Students with learning difficulties often have short attention spans, especially when listening to lectures. This program is particularly effective with these students. The students seem to view the computer monitor as a television screen, which, in their minds, is doing all their work.

This program can be easily modified for students in the mainstream and for gifted students.

**Materials available:**
a manual describing the course and the learning modules, a list of selected consumer mathematics objectives, computer instructions, and 24 selected programs

**Grant type:**
EESA Title II Dissemination Grant

**Contact:**
Bill Stone or Larry Adler
221 Concord Ave.
Belmont, MA 02178
(617) 484-4800

# Achieving Excellence through Technological Application

## Boston

**Curriculum areas:**
all

**Grade levels:**
6 through 8

**Equipment:**
IBM PC, PCjr, and Macintosh computers

**Materials:**
Wordvision, PC-File, PC Storyboard, and Thunderscan software packages

**Personnel:**
teachers, school principal

**Description:**
The entire school population participates in this computer-based education project. One of the unique features of this program is that special needs and bilingual students are integrated into the classes with regular students. There are nine full-time teachers, and 140 microcomputers located in six computer labs and an administrative center. There is also a software library of over 800 programs.

**Objectives:**
1. To help teachers improve their productivity and increase their efficiency in handling conventional tasks such as developing lesson plans and classroom materials, giving them more time to spend on instruction.
2. Once students have mastered the routine operations of the computer and its application programs, the concepts learned are integrated into the regular curriculum.
3. All Taft students are required to take three years of courses in keyboarding, word processing, data management, graphics, and programming in Logo and True BASIC.
4. One of the six labs is devoted entirely to innovative teaching approaches and experimental applications of microcomputers in education.

**Procedure:**
1. The computer is adopted in the classroom as a dynamic productivity tool.
2. Once students have mastered the routine operations of the computer and its applications programs, the concepts learned are integrated into the regular curriculum.
3. All Taft students are required to take three years of courses in keyboarding, word processing, data management, graphics, and programming in Logo and True BASIC.
4. One of the six labs is devoted entirely to innovative teaching approaches and experimental applications of microcomputers in education.

**Recommendations:**
The success of this program hinges on the support of teachers, paraprofessionals and administrators. This commitment and support has led to 98% of the staff using microcomputers for educational and management purposes on a regular basis.

We offer training sessions for educators in the integration of computer applications into the various content areas. We also invite educators to visit our school, observe our program, and discuss instructional issues related to the use of technology.

**Materials available:**
PC Storyboard, "Time Run," produced at Taft Middle School; informational booklet, "A Building That Has Four Walls, with Tomorrow Inside"

**Grant Type:**
EESA Title II Dissemination Grant

**Contact:**
Michael Fung or Irene McCarthy
W.H. Taft Middle School
20 Warren St.
Brighton, MA 02135
(617) 782-0080

# Math through Instructional Gaming

## Boston

**Curriculum area:**
mathematics

**Grade level:**
4 through 6

**Equipment:**
Apple or IBM computers

**Materials:**
board games, software for computer games

**Personnel:**
teachers, program coordinator

**Description:**
The program utilizes mathematics games to supplement and reinforce skills taught in class, to provide motivation for new challenges, and to help students develop problem-solving skills. The program can include the use of computer software programs as well as board games.

**Objectives:**
1. To address the need for materials appropriate for students of varying abilities.
2. To provide group activities in math, as a means of increasing peer support.

**Procedure:**
1. Students are organized in a tournament structure and in teams, thus balancing competition with cooperation.
2. Students receive both individual and team scores, which encourages them to tutor each other.
3. Many games culminate with a player challenging a move made by another player. The students then have to explain the moves and challenges they have made, in effect, explaining the math skills they have used.

**Recommendations:**
The hierarchical tournament structure increases the probability of success most for students with low abilities in general academic skills. The tournament structure, while offering challenge to gifted students, also encourages them to tutor others. The computer software offers further challenge, remediation, and diagnosis for all students.

**Materials available:**
a guide for implementing the program in other school systems

**Grant type:**
EESA Title II Dissemination Grant

**Contact:**
Barbara Radell
Mackey School
90 Warren Ave.
Boston, MA 02116
(617) 266-1968

# TEACHNET

## Boston

**Curriculum area:**
mathematics

**Grade levels:**
3 through 5

**Equipment:**
telephone lines, modems, networking hardware, 15 computers

**Materials:**
IBM Basic Skills Math Series Level II software, telecommunications software

**Personnel:**
teachers (with 8 hours of training)

**Description:**
Project TEACHNET was designed to:

1. increase student achievement and improve remediation efforts in elementary math instruction,
2. improve instructional delivery and management through the use of local area network (LAN) technology, and
3. improve communication among teachers, administration and central office staff through a telecommuniaction network.

Each of the five schools was equipped with software and telecommunications capabilities to use in the computer labs. The math software was used for student instruction. Teachers developed a telecommunications network in order to exchange ideas.

**Objectives:**

1. To improve basic math skills in grades 3, 4, and 5.
2. To use telecommunications as a communication system among teachers and administrators.
3. To assist teachers in learning new techniques for mathematics instruction.
4. To use the capabilities of the local area network (LAN) and keep student records.

**Procedure:**

1. Teachers received training on the IBM basic skills software.
2. Teachers targeted specific software activities to use in their classrooms with students.
3. Students worked on targeted math skills with the software activities.
4. Teachers received training in telecommunications and began telecommunicating between buildings.
5. Teachers continued training on the software and LAN.
6. Teachers continued to target activities to implement with students.
7. Students worked on targeted math skills with the software activities.
8. Teachers participated in teacher-sharing sessions that included exchanges of lesson plans and teaching strategies.

**Recommendations:**
Teachers identified the strengths of this project as curriculum-based software, in-depth training and the opportunity to exchange information with colleagues. The close targeting of software to classroom objectives made it possible for teachers to explore the use of new technology in their classrooms.

Significant time is required for training, learning the software, experimenting with the technology, and implementing projects. Since networking is a new instructional tool for both educators and the computer industry, extra time and technical expertise are required to establish local area networks.

**Materials available:**
a project evaluation document

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Marilyn Gardner
The Humphrey Center
75 New Dudley Street
Boston, MA 02119
(617) 442-5200 x571

# Seventh Grade Connection

# Brookline

**Curriculum areas:**
word processing, English, creative writing

**Grade levels:**
7 and 8

**Equipment:**
Apple IIe computers

**Materials:**
Bank Street Writer or other word processing software, The Oregon Trail software

**Personnel:**
English teacher, computer teacher

**Description:**
This is an interdisciplinary program designed to integrate computer literacy with English instruction.

**Objective:**
To teach computer and writing skills to a heterogenous student population.

**Procedure:**
1. The computer teacher teaches the basic skills needed for the students to become proficient users of Bank Street Writer. Instruction takes place three times a week for an eight-to ten-week period.
2. Each class of 7th graders then uses word processing skills in a writing unit taught by the English teacher. Using the computer lab a minimum of three times per week for a four- to five-week period, students edit and revise the drafts they have written.

**Recommendations:**
This program can be easily expanded to include an eighth grade curriculum. It can also be used to serve ESL students, learning disabled students, and multi-ethnic groups.

**Materials available:**
a brief curriculum guide and a videotape explaining the program

**Grant type:**
EESA Title II Dissemination Grant

**Contact:**
Robert Miller or Frances Morse
Edward Devotion School
345 Harvard Street
Brookline, MA 02146
(617)730-2530

# Technologies Application Planning Process

# Bourne (Cape Cod Consortium)

**Curriculum areas:**
all

**Grade levels:**
2 through 12

**Materials:**
Computer Applications Guidebook, Computer Applications Planning Seminar (CAPS) Manual

**Personnel:**
consultants from the Merrimack Education Center

**Description:**
Four people in each of eight school districts were trained to serve as planners for integrating instructional technology into the schools' existing curricula. The project promoted the development of model procedures and programs that revitalize the curriculum and help students and teachers become more effective.

**Objectives:**
1. To establish a district-wide computer planning process for each of eight towns.
2. To prepare a plan for integrating technology into the existing curriculum.
3. To develop a long-range plan that prepares staff to develop and implement the comprehensive technology program.
4. To establish procedures for coordinating the implementation of the computer program.

**Procedure:**
Each community selected a team of three or four planners. Each planning team then participated in four training sessions. Consultants from the Merrimack Education Center (MEC) visited each community and reviewed the plan that had been developed. Throughout the project MEC provided technical assistance to each community as it developed its plan.

**Materials available:**
written plans for integrating technology into the curriculum

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Dr. Richard Warren
c/o Bourne Public Schools
36 Sandwich Road
Bourne, MA 02532
(617) 759-5112

# An Action Plan to Integrate Computers into the Regular Curriculum

## Boxford

**Curriculum areas:**
language arts, science, social studies

**Grade levels:**
3 through 6

**Equipment:**
Apple IIc and Apple IIe computers

**Materials:**
software for language arts, science, and social studies

**Personnel:**
consultant for needs assessment and training

**Description:**
The project consists of three components: a needs assessment, an action plan, and the development of specific units of instruction for grades 3 through 6. The needs assessment involved teachers, parents, students, facilities, equipment, and software.

The action plan addresses the identified needs through a planned sequence of activities to be conducted during the 1987-88 and 1988-89 school years. The instructional development component of the project included a three-day workshop. Following the workshop, selected teachers developed model units of instruction in language arts, science, and social studies.

**Objectives:**
1. To conduct a comprehensive needs assessment that will provide important information to plan new program directions for the next two years.
2. To provide teachers with opportunities to visit model demonstration programs that use computers.
3. To train teachers in the areas identified as priorities in the needs assessment.
4. To develop model curriculum units for implementation in September 1987.

**Procedure:**
The project began with the identification of a consultant for the needs assessment and training design. Teachers, parents, and students were involved in the needs assessment.

Next, teachers engaged in a number of site visits to model programs in other districts. They used the knowledge gained from these visits with their classes. During this time software was being reviewed in various classrooms for possible use in curriculum units. Students were very involved in rating software selections. Finally, teacher training and curriculum development took place.

**Recommendations:**
The program clearly has value in helping a building faculty identify and develop a comprehensive, well-articulated approach to the use of computer hardware and software in a classroom setting. The process of linking existing curricula to specific computer applications has helped teachers realize their goal of integrating curricula. The optimum time period for conducting a project such as this is one year.

**Materials available:**
needs assessment instruments, action plan for 1987-1989, curriculum units in language arts, science and social studies that link available software to units of study in grades 3 through 6

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Bernie Creeden
Spofford Pond School
Spofford Road
Boxford, MA 01921
(617) 352-8616

# School of the Future

# Cambridge

**Curriculum areas:**
all

**Grade levels:**
K through 8

**Equipment:**
at least one computer permanently set up in each classroom

**Materials:**
various software packages

**Personnel:**
computer resource person

**Description:**
The School of the Future is a city-wide grade K-8 magnet program. It is an autonomous, self-contained program that integrates the computer into all disciplines. The theme of the school's curriculum is problem solving. Each classroom concentrates on one central topic for a period of time. This central topic serves as a focus for the development of interdisciplinary learning activities.

**Objectives:**
1. To create a program that will serve as a system-wide model.
2. To disseminate information about the project for replication in Cambridge and other school systems.

**Procedure:**
The school's program is a product of school-community involvement. Participating in the development of the school's curriculum were educators from universities, computer and software professionals, and business representatives. The teachers in the School of the Future take turns assuming the role of program manager. Each manager serves a one-year term, during which he or she does not teach but is totally responsible for coordinating the development of the program, raising funds, and carrying out other administrative duties.

**Recommendations:**
Cambridge has a desegregating school program. It is a model program that serves children from various socio-economic groups. The program also has a special needs component. Although the start-up costs for a city-wide program such as the School of the Future can be high, the operating budget is greatly reduced once the program has started.

**Materials available:**
ten integrated computer units for grades K-8

**Grant type:**
EESA Title II Dissemination Grant

**Contact:**
School of the Future—Tobin School
197 Vassal Lane
Cambridge, MA 02138
(617) 498-9269

# The Computer—Another Learning Tool

# Dover

**Curriculum areas:**
all

**Grade levels:**
K through 6

**Equipment:**
Apple IIe or other computers, large screen monitor, plotters, printers

**Materials:**
word processing software packages, compilers for BASIC and Logo

**Personnel:**
teachers, principal, consultants

**Description:**
Every student in grades K-6 is involved by having weekly instruction through a defined curriculum and/or software use in the classroom. Logo programming as well as integration of the computer into the classroom are the two main goals.

**Objectives:**
1. To develop computer awareness.
2. To enhance thinking and problem-solving skills through computer programming.
3. To use the computer as a learning tool.

**Procedure:**
1. There is a sequentially planned curriculum for grades K-6. This curriculum is based primarily on Logo. There is also an extensive integration of software into reading, math, health, science, and social studies.
2. An ongoing computer committee, made up of classroom teachers, meets regularly during the school year to evaluate all aspects of the program. The committee participates in summer workshops to update and revise the curriculum, preview software, and recommend the purchase of new materials.
3. A combination computer lab/classroom also allows teachers to provide not only whole class instruction but also individualized follow-up practice.

**Recommendations:**
School systems can benefit from integrating the computer into all areas of the curriculum. The strengths of this program are total staff involvement and community support. The concerns are time and money. It takes a couple of years to build total staff confidence and competence, but with a committed and cohesive staff, it works well.

**Materials available:**
a manual for BASIC instruction (grades 5 & 6), a Logo guide, follow-up work on disks

**Grant type:**
EESA Title II Dissemination Grant

**Contact:**
Renee Rubin
Caryl School
Springdale Ave.
Dover, MA 02030
(617) 785-1430

# Comprehensive Computer Program

# Dracut

**Curriculum areas:**
all

**Grade levels:**
9 through 12

**Equipment:**
Apple IIe, Digital PDP 11/44 computers

**Materials:**
AppleWorks, word processing and MEC programs

**Personnel:**
teachers

**Description:**
This comprehensive computer program provides a full range of courses from which students may choose. Over 95% of the student population is involved in this program. Nearly 98% of all students entering grade 9 enroll in computer skills, the first course in the sequence. Special needs students also enroll in this course. In grade 10, students have an opportunity to take basic programming, after which they can continue with another two years of programming. An additional course in computer applications attracts over 100 students each year. A unique feature of the program is the schools' telecommunication system, which allows students to interact with computers at the local college and university.

**Objectives:**
To provide each student with basic skills in using computers for a variety of purposes.

**Procedure:**
All students are encouraged to participate in the computer program to the limits of their interest and ability.The developmental sequence in computer programming ranges from BASIC to PASCAL to Data Structures. Advanced students are prepared to take the computer advanced placement examination.

**Recommendations:**
The essential strength of this program is the large number and broad variety of students involved. This program can serve a large percentage of any student population, including those in special needs.

**Materials available:**
course descriptions

**Grant type:**
EESA Title II Dissemination Grant

**Contact:**
James R. Ace
Dracut Senior High School
1540 Lakeview Avenue
Dracut, MA 01826
(617) 957-1500

# Easthampton Telecommunication Program

# Easthampton

**Curriculum areas:**
all

**Grade levels:**
K through 12

**Equipment:**
television equipment

**Materials:**
television programs

**Personnel:**
4 consultants

**Description:**
A thirty-hour course was offered to all professional staff members in the Easthampton Public School System. This course taught television production and post-production. It also enabled staff to integrate television technology into their present curricula. During the course teachers created and produced television programs, which will be cablecast on the cable television's local access channel.

**Objectives:**
To enable the school staff to integrate television technology into the curriculum and to produce programs that will demonstrate the quality of the town's public school system.

**Procedure:**
1. A television production class was offered to all professional staff in the school district (30 hours—10 weeks).
2. Four staff members produced television programs.
3. Ten staff members produced curriculum-specific video products.
4. Five staff members were trained in the specifics of instructional television integration.

**Recommendations:**
Through this project we produced quality television programs for the students and community members to view. The project's strength was its ability to use the talents of various teachers in all subject areas to produce this programming. Schools that are considering similar projects should be aware that this kind of project requires a considerable amount of time.

**Materials available:**
four video programs (about 1.5 hrs.)

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Kendra Warhurst
White Brook Middle School
200 Park Street
Easthampton, MA 01027
(413) 527-6000

# Project Marsh

# Fairhaven

**Curriculum areas:**
science

**Grade levels:**
K through 5

**Equipment:**
videocassette recorder, camera, monitor

**Materials:**
database software and Voyage of the Mimi software

**Personnel:**
consultants from the Lloyd Center for Environmental Research and an instructor

**Description:**
Project Marsh added videotaping and database capabilities to a successful School Improvement Council project. The project also provided consultant and instructional services for the purpose of continuing and refining teaching units.

**Objectives:**
1. To develop teaching activities and materials for grades K-5.
2. To develop a database on the marine specimens that students collected and identified.
3. To enable students to acquire map-reading skills by using Voyage of the Mimi software.

**Procedure:**
1. Negotiate costs and project objectives with consultants from the Lloyd Center.
2. Acquire equipment and software.
3. Develop instructional materials.
4. Develop lesson plans involving field experiences in local marsh and estuarine environments.
5. Plan and implement computer sessions.
6. Conduct lessons and field experiences.
7. Plan and develop databases.
8. Evaluate the project.

**Recommendations:**
While this program focuses on a marine and estuarine environment, the concepts and approaches involved could be adapted to any study of ecosystem food webs and environments.

**Materials available:**
units on marine and related seashore habitats (available on limited basis)

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Victor L. Brunette
LeRoy L. Wood School
60 Sconticut Neck Rd.
Fairhaven, MA 02719
(617) 997-2971

# Project WRITE

# Hingham

**Curriculum areas:**
language arts, writing, humanities

**Grade levels:**
5 and 6

**Equipment:**
Apple IIe computers with double-disk drives, printers

**Materials:**
AppleWorks software, PAWS software, Language Arts curriculum

**Personnel:**
workshop consultants

**Description:**
Teachers received instruction in using a word processor with students. They then developed activity packets integrating the computer into the language arts curriculum.

**Objectives:**
1. To train staff in the use of Appleworks and PAWS software.
2. To develop writing activities for Grades 5 and 6.
3. To purchase hardware and software for student word processing.

**Procedure:**
1. Teacher workshops were held in February and March 1987.
2. Curriculum materials were developed by teachers from March to May.
3. Throughout the entire period, students were instructed in computer use.
4. Beginning in March students piloted the curriculum materials.

**Recommendations:**
The program has functioned well, although after four months, a few teachers still lacked the confidence to fully implement it. Most teachers would have liked more "hands-on" workshop time to build their mastery of word processing skills.

**Materials available:**
teacher guides and student activities for writing experiences in grades 5 and 6 (These materials support our own, rather than commercially available, language arts curriculum.)

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Dorothy Galo
c/o Hingham High School
41 Pleasant Street
Hingham, MA 02043
(617) 749-5320

# Early Childhood Technology Evaluation Grant

## Holliston

**Curriculum areas:**
reading, language

**Grade levels:**
pre-K through 1

**Equipment:**
IBM computers

**Materials:**
Writing to Read software

**Personnel:**
Evaluator

**Description:**
This project involved evaluating computer-assisted instruction in ten kindergarten classrooms and three pre-school classrooms. The programs evaluated were a computer reading program and ancillary modality instruction. Our long-range goal is to implement and adapt a model of computerized instruction based on the data gathered.

**Objective:**
To evaluate the hypothesis that the computer-assisted program supports growth in language, reading, and fine motor skills at a significant level.

**Procedure:**
Over a two-year period, all students in grades Pre-K and K were administered a battery of pre-and post-tests. Three standardized measures were used.

**Materials available:**
an evaluation report

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Dr. Margaret Reed
Holliston SPED Office
Linden St.
Holliston, MA 01746
(617) 429-4766

# Supposing in Geometry and Algebra

# Holyoke

**Curriculum areas:**
mathematics

**Grade levels:**
9 through 11

**Equipment:**
Apple IIe computer and Apple IIc computers, video projector

**Materials:**
Geometric Supposer software, Compucalc software

**Personnel:**
8 instructors

**Description:**
Supposing in Geometry and Algebra represents the third year of a three-year plan for the redesign of secondary mathematics instruction in Holyoke. Teachers, parents and administrators recognized that for many students, especially minorities, standard textbook-lecture-workbook strategies did not work. Using new approaches to math, we redesigned the curriculum. The new curriculum allows students to become personally involved in math and to actively solve problems at their own pace and in their own language.

**Objectives:**
1. To reorganize 9th-12th grade geometry and algebra instruction, employing computers as tools of inquiry and investigation.
2. To improve educational opportunities in mathematics and technology for minority and disadvantaged students.

**Procedure:**
The first task was to help staff develop skills and confidence in computers and their use. Over a period of three years, all geometry and algebra staff were sent to local computer workshops.

Next, we piloted instructional computing strategies with all geometry classes. After the initial pilot, all geometry classes were given two periods per week using the Supposer.

In addition to the classroom computer work, students were permitted to sign out both the computers and the software over the weekends or long vacations. A group of two or three students met at a host parent's home during the weekend to work on a graded geometry project. These projects were then presented to the class the following Monday.

**Recommendations:**
The key to success in this project was staff development. If the teacher feels that the computer is really of value in math education, then the machine will have value in that teacher's class; otherwise it will not.

Computers in the classroom threaten many teachers. If teachers are given plenty of time and support to learn to use the computer, much of that fear goes away. Computers should be assigned freely for teacher use both at home and in school, before any attempt is made to use them for instruction. School-sponsored programs that permit teachers to buy computers at reduced rates are a great help.

**Materials available:**
Supposer workbook and worksheets (in Spanish), elementary function workbook

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
George Collison
Holyoke High School
500 Beech Street
Holyoke, MA 01040
(617) 534-2020

# Project TECH

## Lawrence

**Curriculum areas:**
English as a second language, language arts, mathematics, basic skills

**Grade levels:**
4 through 6

**Equipment:**
8 Apple IIe computers, 8 Apple Image printers

**Description:**
This program provides 4th-6th grade teachers with an opportunity to receive training in the use of computers and to plan for the effective use of computers in the instruction of students of low-English proficiency.

**Objectives:**
1. To integrate computers into the curriculum as a means of enabling low-English proficiency students to successfully make the transition into mainstream classes.
2. To train selected teachers in the development of computer-based activities.

**Procedure:**
1. Initiate a meeting with the teachers and the distric selection committee to review goals, objectives and activities.
2. Select the participants for the program.
3. Develop and analyze a needs assesment and evaluation instruments for participating teacher and students.
4. Conduct workshops for the participants.
5. The participating teachers develop activities fo the use of computers in classrooms.
6. Implement the activities in the classrooms.

**Materials available:**
a brochure describing the project

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Elaine M. Theriault
Lawrence Public Schools
58 Lawrence St.
Lawrence, MA 01841
(617) 685-9148

# Project WRITE

# Lunenburg

**Curriculum areas:**
all

**Grade levels:**
11 and 12

**Equipment:**
12 Apple IIe computers with printers

**Materials:**
AppleWorks software, reference handouts

**Personnel:**
project staff and full-time aide

**Description:**
The project established a word processing lab complete with twelve Apple IIe computers with printers and word-processing software. A full-time aide staffed the lab. The major objective of the writing project was to improve students' writing skills in a variety of content areas by having them learn to use word processing. Participating classes represented a cross section of the overall high school population.

The project provided for teacher-training materials; revision of existing curricula to incorporate word processing; and evaluation by staff, students, and an outside consultant.

**Objectives:**
1. To train teachers and students in word processing.
2. To integrate word processing with writing skills based on the Lunenburg Writing Program.
3. To use word processing as a tool for writing in the content areas.
4. To utilize the services of a word processing aide.

**Procedure:**
Students were scheduled to use the lab during study periods twice a week. During that time, they completed assignments using word processing. Often students' tasks involved producing draft copies, which they edited with their teacher's assistance prior to completing the final document. In the initial phases of the training, teachers accompanied students as a class to the lab.

**Recommendations:**
The Lunenburg Writing Project has been successful. Both teachers and students now have experience using word processing software. The word processing lab has been effectively meshed with the writing skills aproaches of the adopted program. One of the strengths of the project was the close monitoring and record-keeping system. Additionally, the word processing lab aide has played a key role in the project's success.

**Materials available:**
AppleWorks Tutorial software, training worksheets (available on loan), individual course curricula incorporating word processing (available on loan)

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Sheila Flynn
Lunenburg High School
1079 Mass. Ave.
Lunenburg, MA 10462
(617) 582-9941

# Planning for Television: Marblehead Public Schools and Cable

## Marblehead

**Curriculum areas:**
all

**Grade levels:**
K through 12

**Equipment:**
use of ¾" format cable television studio

**Materials:**
blank videotape

**Personnel:**
10 teachers, 1 consultant, 1 administrator

**Description:**
This project involved looking at ways television could be used in the Marblehead Public Schools, especially with METCO and special education students. The project included in-service training for teachers on the topics of television production and critical viewing skills. An additional component of the project was the development of curriculum for two new courses, TV I and TV II.

**Objectives:**
1. To identify effective techniques for using cable television.
2. To conduct in-service seminars for teachers, focusing on critical viewing skills and basic television production techniques.
3. To design programs specifically geared to students in special education and Chapter I.
4. To plan in-service training programs for the remaining K-12 staff for 1987-88.

**Procedure:**
First a consultant was hired. He then met with the heads of Pupil Personnel Services, METCO, and Special Education to discuss the needs of the students served in these programs.

Next, eight in-service training sessions were conducted for ten teachers and one administrator. Office hours with the consultant and individual staff were established to allow individuals to work one-on-one with him.

Curriculum was developed for two new courses, TV I and TV II. Using the consultant's ideas, in addition to our own, increased the resources from which we drew to write these courses.

**Recommendations:**
Other schools could use a strategy similar to ours for integrating cable television into the curriculum. We have learned a lot about this integration process, as well as the time constraints and personnel expectations involved. We have developed a valuable network of trainers through this grant. One of the major strengths of this project was that it capitalized on staff enthusiasm.

**Materials available:**
Television I and Television II course

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Lesley Johnson
Marblehead Public Schools
2 Humphrey Street
Marblehead, MA 01945
(617) 631-0900 x140

# Using the Computer as an Instructional Tool

## Peabody

**Curriculum areas:**
mathematics, language, reading

**Grade levels:**
K through 5

**Equipment:**
13 Apple IIe computers

**Materials:**
Minnesota Educational Computing Consortium (MECC) software for math, language arts, and reading, blank disks, surge protectors

**Personnel:**
8 trained computer aides

**Description:**
The project's goal is to provide every elementary student with the opportunity to use a computer in a lab setting for one hour each week.

**Objectives:**
1. To provide ongoing computer opportunities.
2. To train computer aides.
3. To evaluate MECC software.

**Procedure:**
1. Train paraprofessional computer aides.
2. Evaluate MECC software.
3. Schedule the aides for eight schools.
4. Schedule each class for one hour of lab time per week.
5. Monitor the program using the computer resource person.

**Recommendations:**
Because our lab had 13 computers, we needed to split the classes in half, allowing each group to work in the lab for a half hour at a time. The program works well and has a high degree of acceptance.

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
John H. Walsh McCarthy School
76 Lake St.
Peabody, MA 01960
(617) 531-1600 x130

# Interactive Video Classroom

# Reading

**Curriculum areas:**
all

**Grade levels:**
10 through 12

**Equipment:**
3 cameras, videocassette recorder, 2 monitors, one 40-inch television, audio mixer, microphones, cables

**Personnel:**
AV director, English teacher

**Description:**
Our long-term goal is to offer a number of courses to the collaborating schools, via two-way interactive video. Our more immediate goal is to begin teaching courses in the towns of Reading and Wakefield using this technology. The purpose of this collaborative is to retain curriculum offerings that might otherwise be dropped because of declining enrollment.

**Objectives:**
1. To establish an interactive video classroom at both Reading and Wakefield high schools.
2. Implement a teacher in-service program for participating Reading and Wakefield teachers.
3. To teach a prototype course.

**Procedure:**
1. Complete the cable link between Wakefield High School and Reading High School.
2. Construct the classroom and test the system.
3. Select and orient the students.
4. Organize the course material to be taught.
5. Hold a teacher orientation session.
6. Run the course using the interactive system.
7. Post-test the students.

**Recommendations:**
Schools that are cutting back on curriculum offerings as a result of declining enrollment are potential users of this program. The program's strength is that it provides a solution to the difficult and common secondary school issue of diminishing curriculum offerings.

The difficulties in carrying out a project such as this include the numerous and complex issues related to the physical construction of the system; these issues involve the participating schools, the cable television companies (which may be competitors), and even the municipal government.

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Joseph F. Cain
Reading Memorial High School
62 Oakland Road
Reading, MA 01867
(617) 944-8200

# Electronic Networking as a Classroom Resource

# Rockland

**Curriculum areas:**
social studies, mathematics, science, English library science

**Grade level:**
6

**Equipment:**
Apple computer, modem, printer

**Materials:**
phone lines, subscription to The Source on-line data service

**Personnel:**
4 classroom teachers

**Description:**
A grade 6 team was selected for this project. One teacher served as supervisor and directed the utilization of the system by students. The computer staff set up the system and provided training. Students have become quite comfortable in using the network.

**Objective:**
To utilize an electronic resource as part of the regular curriculum.

**Procedure:**
1. Purchase and install the equipment.
2. Train the staff.
3. Provide instruction for students.
4. Utilize the system.

**Recommendations:**
The system is definitely worthwhile for classroom use. It is most appropriate for upper grade levels. Staff training is critical to the successful implementation of a resource like this one.

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
John Pini
Rockland Public Schools
34 Goddard Ave.
Rockland, MA
(617) 878-4340

# PALS High School Literacy Program

## Salem

**Curriculum areas:**
remedial reading and writing

**Grade levels:**
10 through 12

**Equipment:**
IBM computers (8 PCJrs, 4 PCXT's with InfoWindows monitor heads), 4 Pro printers, 4 electric typewriters, 4 Pioneer videodisc players LD-V6000, 8 cassette tape recorders

**Materials:**
IBM PALS software, Primary Editor software, Touch Typing software, Educational Publishing Service, Type IT, IBM PALS journals and teacher manuals

**Personnel:**
1 coordinator and 1 teacher

**Description:**
One coordinator, nine teachers, and four administrators at Salem High School were trained in IBM's PALS (Principles of the Alphabet Literacy System). The PALS Program utilizes computers, laser disks and recently developed software, tape recorders, and typewriters to develop reading and writing skills in young adults for whom traditional approaches to remediation have been ineffective.

The program was piloted with fifty-six tenth, eleventh, and twelfth-graders who were reading three or more years below grade level. This group of students included bilingual and special education students.

**Objectives:**
1. To improve the fifty-six participating students' reading and writing skills.
2. To enable the students to develop touch-typing and other job entry skills.

**Procedure:**
First the project staff were trained in the materials, equipment, objectives, activities, and twenty "vital practices" necessary for the successful operation of the program. Next, students were oriented to the program over a one- or two-week period. During this period students were trained to correctly operate the computers, info-windows, typewriters and tape recorders. Training included proper handling and care of software.

After the initial training, students attended the PALS Lab for one period daily, working in pairs on the PALS software and journals, and individually on touch-typing, writing, and job skills development. The teacher and coordinator monitored student progress, adjusted student placement in the program software, coached writing, and assisted students on an individual basis.

**Recommendations:**
The PALS Program is best used to remediate reading and writing skills for high school students fifteen years of age and up and for functionally illiterate adults for whom traditional approaches are ineffective. The programs strengths are:
1. the quality of program components which have been exhaustively researched, field-tested, and revised;
2. the high motivational factor in applying computers and other up-to-date technology to basic skills remediation;
3. the career relevance of training students to use technology effectively and successfully; and
4. the program's effectiveness in improving reading and writing skills by an average of three grade levels within a single year.

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
William McKinnon
Salem High School
77 Willson Street
Salem, MA 01970
(617) 745-9300 x159

# Using High-Tech Tools

## Shrewsbury

**Curriculum areas:**
English, American history, science, community studies

**Grade levels:**
4 through 12

**Equipment:**
14 personal computers with disk drives, 4 printers, 1 modem, phone line, CD-ROM disc player system

**Materials:**
communications software, outlining software, database software

**Personnel:**
support staff of computer specialists and aides

**Description:**
The project trained a cross section of students and teachers from grades 4-12 in using up-to-date technology to do research. We developed tools and major approaches to implement Shrewsbury's "Research Skills Sequence" framework. These tools included on-line databases, commercial databases and CD-ROM discs, self-constructed databases, and "outlining" software.

**Objectives:**
1. To enable students to use on-line databases and CD-ROM technology to gather information.
2. To enable students to use information-handling software to organize their information (i.e., outlining, bibliography).
3. To enable students to develop data files and use commercial databases to study their community and their country.

**Procedure:**
Teachers, administrators, and other staff members received in-service training in the new research technology and then planned curriculum units using that technology. About 400 target population students in grades 4 through 12 carried out these curriculum units as part of Shrewsbury's research skills sequence.

**Recommendations:**
It is important for educators to learn the classroom uses of the new research technology and to practice these uses. The use of these new tools should be integrated into the curriculum, along with traditional research practices, across the grade levels.

**Materials available:**
a series of reference booklets providing "how to" instructions for the technology skills; curriculum booklets aimed at selected grade levels from 4 through 12 in history, English, and science; development of a 1.5 credit graduate course entitled "Using High Tech Research Tools"

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Thomas Plati
Shrewsbury High School
45 Oak St.
Shrewsbury, MA 01545
(617) 533-2092

# Computer Instruction Program

# Union 47 (Bolton, Stow)

**Curriculum areas:**
all

**Grade levels:**
K through 8

**Equipment:**
20 Apple IIe computers

**Materials:**
Word processor, Logo, Delta Drawing, and other instructional software packages

**Personnel:**
computer teacher and classroom teachers

**Description:**
This broad-based curriculum is designed to integrate the computer into as many content areas as possible. So far, the program has incorporated activities in language arts, social studies, health, science, math, and physical education.

One of the program's main focuses has been to use the computer to enhance the writing process at all grade levels. Students in grades 3 through 8 have been involved in computer activities that incorporate all the steps in the writing process, including pre-writing and publishing. The 8th grade students use the word processor and a database in the preparation of the yearbook. A school computer newspaper, staffed by 7th and 8th grade students, with contributors from other grades, was published as an extra-curricular activity.

**Objectives:**
1. To integrate the use of computers into the existing curriculum and to prepare students for life in a technological society.
2. To bring a humanistic balance to the technology by creating an environment in which students can explore, share, and teach each other.

**Procedure:**
The Emerson Three-Year Computer Program was developed with the support of the school committee, the administration, and the community. Staff development, through in-service training, was started in the spring of 1983. This initial training has been expanded and revised to meet the needs of the teachers as the program has grown.

**Recommendations:**
Other schools can use our program as a model for a comprehensive, long-range plan.

**Materials available:**
a 32-page booklet "Computer Instruction—A Three Year Plan," which covers the following: philosophy, objectives, curriculum development, teacher training, budget preparation, hardware and software acquisition

**Grant type:**
EESA Title II Dissemination Grant

**Contact:**
Joan Hamilton
Emerson School
Main Street
Bolton, MA 01740
(617) 779-2821

# Project ECHO

## Union 61 (Brimfield, Brookfield, Holland, Sturbridge, Tantasqua, Wales)

**Curriculum areas:**
language arts, computer applications

**Grade level:**
5

**Equipment:**
Apple IIGS, Apple IIe microcomputers

**Materials:**
AppleWorks software, Apple Access software

**Personnel:**
classroom teachers, consultants

**Description:**
Project ECHO is an integrated computer and language arts program. Using computers, grade 5 students from the Union 61 towns send electronic mail to one another via computers and modems. The program emphasizes technology as a useful communication and learning tool.

**Objectives:**
1. To foster computer literacy.
2. To increase opportunities to develop and practice writing skills.
3. To improve the interactions among students from predominantly rural areas.

**Procedure:**
The students involved with project ECHO were involved with developing writing skills as well as improving their computer literacy. Students wrote pen pal letters and class newsletters, developed databases and practiced word processing skills.

**Recommendations:**
The project had several benefits:
1. It helped to motivate students to write.
2. It demonstrated the use of computers in the school curriculum.
3. It motivated teachers to use the computer.

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Dr. Paul C. Gagliarducci
Superintendent's Office
Brookfield Rd.
P.O. Box 26
Sturbridge, MA 01566
(617) 347-9014

# Project POWER

# Walpole

**Curriculum areas:**
English, social studies

**Grade levels:**
9 through 12

**Equipment:**
18 Apple computer systems, 9 printers

**Materials:**
AppleWorks software, Minnesota Educational Computing Consortium (MECC) AppleWorks training software, video camera

**Personnel:**
a coordinator and high school teachers

**Description:**
The long-term goal of the project was to increase students' use of the technology available at the high school level. This was done by encouraging teachers in traditionally non-computer oriented departments to learn about, identify, and use appropriate computer applications with their students. An inventory of available community and school department technology resources and a description of how they are currently integrated provided a basis for the project.

Instructional units incorporating computer and video technology were developed for the following courses: freshman English, sophomore U.S. history, journalism, U.S. economic history, international relations, and intensive writing.

**Objectives:**
1. To identify the range of technology currently available as a basis for planning activities.
2. To explore ways in which general purpose computer applications and video technology can be used as tools for teaching research.
3. To teach information analysis, along with written and oral communication skills, to all students in grades 9 through 12.
4. To develop a logistical plan for the teaching of the newly developed curriculum units.

**Procedure:**
1. Develop inventories of hardware, software and K-12 teacher computer use.
2. Develop a community resources database form.
3. Ascertain options for the use of the cable television studios.
4. Offer an AppleWorks course to teachers.
5. Develop specific instructional units.
6. Develop plans for using on-line databases and exploring exemplary programs in other communities.
7. Develop a logical plan for teaching the newly developed curriculum units.

**Recommendations:**
A major strength of this project was the involvement of both novice and expert teachers and students in exploring these new computer applications within the regular content area courses, rather than in an isolated "computer education" setting.

A major challenge we faced involved trying to train ourselves in new computer applications at the same time we were attempting to introduce these to students. One component that was critical to the overall success of the project was the employment of a knowledgeable computer lab aide who was available to provide guidance to both teachers and students during free periods.

**Materials available:**
current use and inventory report, six instructional units for English and social studies, a videotape (available for loan), format for parent volunteer handbook

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Linda B. Colvin
Walpole Public Schools
School Street
Walpole, MA 02081
(617) 668-5400

# Collaborative Technology Integration Project for the Middle School Curriculum

## Watertown (EdCo Education Collaborative)

**Curriculum areas:**
mathematics, science, art, music

**Grade levels:**
6 through 8

**Equipment:**
Apple computers

**Materials:**
various software packages in math, science, art, and music

**Personnel:**
11 middle school teachers

**Description:**
Eleven middle school teachers from five school districts worked collaboratively in teams of two or three to develop technology-integrated curriculum units in the areas of math, science, music, and art. Math projects involved problem solving, estimation, and geometry (using Logo). In music, the focus was composing; in art it was drawing. The science project used computer graphs for organizing and analyzing data.

**Objectives:**
1. To use technology to enhance the middle school curriculum areas of math, science, and the arts.
2. To improve problem solving, estimation skills, and number sense.
3. To improve visual-spatial thinking.
4. To improve higher-order thinking skills such as classifying and analyzing.
5. To provide experiences in music composition.

**Procedure:**
1. A request for proposals was prepared by the supervisory group.
2. Teachers submitted proposals.
3. Teachers worked individually on their curriculum units.
4. Teachers had monthly meetings, working in teams of three or four to provide each other with ideas, resources, and feedback.
5. Activities were field tested in the classroom, generating feedback from students.

**Recommendations:**
The most valuable aspect of this project was the collaboration of teachers from different school systems. Teachers rarely have opportunities to do curriculum development with people outside their own schools. The project participants have learned a great deal from each other's projects. The variety of points of view and experiences represented in the project resulted in the development of quality materials.

**Materials available:**
teacher-developed curriculum units

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Thomas Oates
Assistant Superintendent
30 Common Street
Watertown, MA 02172
(617) 926-7700

# Computer as a Tool

# Wellesley

**Curriculum areas:**
computer literacy, social studies

**Grade levels:**
9 through 12

**Equipment:**
computers

**Materials:**
software for word processing, databases, and spreadsheets

**Personnel:**
classroom teacher

**Description:**
This is a computer literacy course that involves the student in learning to apply fundamental tools of the computer (word processing, spreadsheets, and databases) to personal and community problems.

**Objectives:**
1. To provide all students with access to computer problem-solving tools that do not require any prerequisites or programming ability.
2. To enhance students' skills in the following areas: teamwork, making decisions with incomplete information, gaining access to information, and identifying suitable problems.

**Procedure:**
The course meets twice a week in a lab setting for one semester. Responsibility to identify problems and develop solutions is placed upon the students. Often these problems involve working with clients in the larger community. Students may become consultants to adults who do not completely understand the technology.

**Recommendations:**
While this course is open to all students in the high school, it has attracted a large number of students who ordinarily would not elect a computer course. We have made a special effort to work with special educators, in order to involve students who have exhibited attendance and school attitude problems.

**Materials available:**
a brochure explaining the program

**Grant type:**
EESA Title II Dissemination Grant

**Contact:**
Alan November
Wellesley Junior High School
40 Kingsbury Street
Wellesley, MA 02181
(617)235-7250

# Integrating Technology in a Middle School Curriculum

## Westfield

**Curriculum areas:**
language arts, social studies, science, mathematics

**Grade levels:**
7 and 8

**Equipment:**
20 MacPlus computers, 4 printers, hard disk, projector, Appletalk wiring

**Materials:**
Microsoft Works, Typing Tutor, and MacServe, software, Word Moose Pads

**Personnel:**
1.5 teachers

**Description:**
Through the use of a computer networking system, students learn keyboarding and word processing, while gaining computer literacy. Students also complete projects in major curriculum areas on the computer system. Seventh grade courses are provided for all students, and the eighth grade course is offered as an elective.

**Objectives:**
1. To modernize and expand the existing typing program using computer technology.
2. To enable students to learn keyboarding and word processing and, in the process, gain computer literacy.
3. To provide students the opportunity to use technology in major curriculum areas and to monitor their performance.
4. To increase teachers' awareness of technology and to enable teachers to develop plans for incorporating technology into the curriculum.
5. To increase the community's awareness of technology.

**Procedure:**
Students receive basic instruction in word processing, database management, and spreadsheet use and then apply this information to major curriculum areas through specific projects.

**Recommendations:**
This project provides an effective base for integrating technology into a middle or high school environment.

**Materials available:**
information booklet and videotape
(available on loan)

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
George O'Brien
Westfield Public Schools
22 Ashley Street
Westfield, MA
(413) 568-9592

# Computer Applications and Telecommunications in the Curriculum

## Westwood

**Curriculum areas:**
all

**Grade levels:**
7 and 8

**Equipment:**
CD-ROM player, 23 Apple IIe, Macintosh, and IBM PC computers, modem, phone line

**Materials:**
telecommunications software, AppleWorks software, CD-ROM electronic encyclopedia

**Personnel:**
library media, social studies, English, computer applications, and special needs personnel

**Description:**
Research skills involving print, video, on-line databases, telecommunications, and CD-ROM were integrated into academic curricula to expand the search strategies of at risk students. Interdisciplinary multimedia and integrated software units were developed to expand and improve at risk students' language arts and research skills data analysis and to function as a motivational tool.

We produced a videotape focusing on the Third World and documenting both student interaction and our team-teaching approach.

**Objective:**
To document the use and effectiveness of integrated technology to meet the needs of at risk students, both in the special needs resource room and learning centers and in regular classes.

**Procedure:**
The planning process involved staff from social studies, English, special needs, information science, computer applications, the Parent Network, School Improvement Council and administration. Equipment was purchased and staff met to develop and expand interdisciplinary curriculum integrating technology. Video scripts were written, and students were involved in video production.

Schools in remote areas were identified for participation in telecommunication projects. At risk and regular students received training in electronic information retrieval. Students used their knowledge of telecommunications in writing projects involving students from other schools.

**Recommendations:**
Educators can use the videotapes and printed materials we produced to generate ideas for similar projects in their own schools. In our project, at risk students produced outstanding written work, and were motivated to research topics using key words and main ideas through a variety of formats.

**Materials available:**
1. an outline of all the projects
2. a videotape documenting our use of computer applications
3. a technology curriculum guide and bibliography
4. a booklet, videotape and AppleWorks database and spreadsheet on the interactive multi-media unit, Feeding the Billions: A Journey through the Third World

NOTE: Some of these materials involve a fee. Price information is available from the contact person listed below.

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Roxanne Baxter Mendrinos
Edmund W. Thurston Junior High School
850 High Street
Westwood, MA 02052
(617) 326-7500 x50, 51

# Telecomputing in School

## Williamstown

**Curriculum areas:**
social studies, language arts, science, foreign language, computer literacy

**Grade levels:**
K through 12

**Equipment:**
computer, modem, phone connection, printer

**Materials:**
communications software, subscriptions to on-line services, electronic bulletin boards

**Personnel:**
group leader—2 hours per week

**Description:**
Our planning group met twelve times, both with and without consultants. We explored a number of telecomputing activities in which we used our computers to communicate with other computers over telephone lines. These other computers included microcomputers in schools, minicomputers, and the giant mainframes of services such as Compuserve and Dow Jones. This background enabled us to develop two alternative plans for integrating telecomputing into our curriculum next year, depending on available funding.

**Objectives:**
1. To expand the opportunities for professional development and sharing.
2. To enhance the relationships among participating schools.
3. To expand the opportunities for students to share and exchange information with others.
4. To enable students to use on-line databases for research.
5. To enhance communication with the community.
6. To improve regional administrative communication.

**Procedure:**
At the group's initial meetings we shared information about our own resources and experiences. Later we alternated planning sessions and meetings with consultants. Other teachers participated when appropriate. Midway through this sequence we established some exploratory activities to try with elementary students.

**Recommendations:**
At least six months should be set aside for the planning process. Adequate resources are a must—not only hardware and software, but subscriptions to on-line services and bulletin boards. A 1200 baud modem is preferable to 300 baud. Also, it is important to plan and publicize meetings well in advance.

**Materials available:**
telecomputing handbook

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Len Huber
Williamstown Elementary School
96 School Street
Williamstown, MA
(413) 458-5707

# Project VCR

## Lincoln-Sudbury Regional School District

**Curriculum areas:**
foreign language, social studies

**Grade levels:**
9 through 12

**Equipment:**
videocassette recorder, camera (camcorder), TV monitor

**Materials:**
videocassettes

**Personnel:**
teachers

**Description:**
Project VCR is a proficiency-based Spanish program in which the video productions make up approximately 40% of the course work. Through student written, directed and performed video productions, students "do with" rather than "study about" language.

**Objectives:**
1. To fulfill the need for oral proficiency in foreign language as a direct response to a national mandate to produce speakers of other languages.
2. To provide training in communication skills and public speaking.
3. To promote cultural exchange.
4. To use educational technology to add another dimension to student evaluation and to decrease reliance on achievement tests as the sole means for evaluating students.

**Procedure:**
Students become actively involved in practicing for the video productions, filming, coaching, and eventually critiquing them. Foreign students in the school are also invited to participate in the video productions. Video productions are designed to include as many topics as possible in social studies and foreign cultures.

**Recommendations:**
This program can be easily adopted for any language, and also for other subjects such as social studies.

**Materials available:**
a videotape explaining the program

**Grant type:**
EESA Title II Dissemination Grant

**Contact:**
Larraine Gandolfi
Lincoln-Sudbury Regional High School
390 Lincoln Road
Sudbury, MA 01776
(617) 443-9961

# Microcomputers in Small Business

## Minute Man Regional Vocational-Technical School District

**Curriculum areas:**
any areas involving business and record-keeping

**Grade levels:**
10 and 11

**Equipment:**
one computer per student

**Materials:**
AppleWorks software, blank disks for each student, small number of reference books, typing reinforcement software

**Personnel:**
teacher

**Description:**
This course was developed to help vocational-technical students understand and practice the applications of computers to small business. During the course, students have an opportunity to formulate customer files, inventory sheets, and salary structures. Students are encouraged to apply their work to the establishment of new or existing small businesses as electronic support for the total management process.

**Objectives:**
1. To enable students to integrate their shop majors, a business management course, and computer experience.
2. To enable students to author word processing, spreadsheet, and database forms appropriate for small businesses.

**Procedure:**
This program presents a basic introductory computer course to a full class of shop students. Using database filing, spreadsheet calculations, and word processing, students create functional business forms. Drill and practice software is used to help them develop keyboarding skills and speed. Although the program was developed for a specific study area, students from other disciplines have enrolled in the course on a space-available basis.

**Recommendations:**
The course's content can easily be applied to the operation of a small business. Although the course was developed for a particular business, the information can be applied to the operation of almost any small business by simply changing a few labels.

**Materials available:**
brochure, flyer, curriculum guide with implementation guidelines, textbook

**Grant type:**
EESA Title II Dissemination Grant

**Contact:**
Sebastian R. Paquette
Minuteman Regional Vocational-Technical School
758 Marrett Road
Lexington, MA 02173

# Project CERES

# Norfolk County Agricultural School District

**Curriculum areas:**
all

**Grade levels:**
9 through 12

**Equipment:**
Apple IIGS computers, printer, modem, phone line

**Materials:**
software communication packages

**Personnel:**
teacher

**Description:**
Project CERES provided ready access to an online information service (CompuServe) so that students would easily be able to do computer searches of encyclopedic and newpaper-based information sources.

**Objectives:**
To enable students to conduct computer searches of Grolier's Encyclopedia and U.S.A. Today .

**Procedure:**
The major activities of Project CERES were the purchase and installation of the hardware and software necessary for an easily usable on-line terminal.

**Recommendations:**
Projects similar to CERES are very simple to introduce into a school setting. A major consideration would be the availability of staff to conduct training and to serve user needs during operation. Projects similar to CERES may be especially appealing to school districts because it enables schools to access databases at other schools.

**Materials available:**
a flyer for student information

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Dr. Michael Barden
Norfolk County Agricultural High School
460 Main Street
Walpole, MA 02081
(617) 668-0268

# New Technology Applications in Math and Science Education

## Merrimack Education Center (MEC)

**Curriculum areas:**
mathematics, science

**Grade levels:**
6 through 12

**Equipment:**
Apple and/or IBM computers with color monitors, videodisc players, CD-ROM players

**Materials:**
Appleworks software, videodiscs, CD-ROM discs

**Personnel:**
math teachers, science teachers

**Description:**
The Lunenburg Public Schools and the Tewksbury Public Schools are currently collaborating with the Merrimack Education Center (MEC) in using the problem-solving model for their science curricula. This program is designed to offer teachers program development support and implementation guidelines for the integration of technology into the math-science curriculum.

**Objectives:**
1. To assist teachers in revising science courses and to conduct course planning in the middle school.
2. To motivate students and to enable them to form hypotheses and test predications.
3. To encourage teachers to administer examinations electronically.

**Procedure:**
1. The MEC program provides three model lesson plans that have been developed and field tested by teachers of the MEC curriculum development framework. These models deal with problem solving in science using databases, spreadsheets, and graphics.
2. This project also provides a demonstration program on the utilization of videodisc technology as an effective teaching tool in science education.

**Recommendations:**
The program models and strategies can be used first and foremost to supplement and enhance the capacity of the classroom teacher. Secondly, the instructional units provide a unique framework for the successful integration of content objectives, process skills and technology applications into a single learning activity.

**Materials available:**
awareness brochure, videodisc directory, customized training agenda, selected journal reprints

**Grant type:**
EESA Title II Dissemination Grant

**Contact:**
John Phillipo
Merrimack Education Center
101 Mill Road
Chelmsford, MA 01824
(617) 256-3985

# Interactive Telecommunications

# South Berkshire Educational Collaborative

**Curriculum areas:**
all

**Grade levels:**
10 through 12

**Personnel:**
collaborative director, 5 consultants

**Description:**
Interactive telecommunications systems can be used to maintain and expand secondary level curriculum in spite of financial constraints and declining enrollments. This project assesses the feasibility of using this technology throughout four school districts.

**Objectives:**
1. To review the major interactive technologies associated with distance learning.
2. To assess the feasibility of an interactive system for the school districts in the South Berkshire Educational Collaborative.
3. To contract with a technical consultant to develop an implementation plan and budget.

**Procedure:**
1. Research successful interactive projects and disseminate information throughout the districts.
2. Clarify the schools' needs and generate support of interactive telecommunications as a potential solution.
3. Host a seminar with representatives of successful interactive telecommunications projects.
4. Assess the feasibility of an interactive telecommunications project and develop an implementation plan for it.
5. Seek funding for a demonstration project.

**Recommendations:**
Once our project is fully implemented, it can be used as a model for small and rural Massachusetts schools facing declining enrollments and continued financial pressures.

**Materials available:**
feasibility study and implementation plan

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Richard G. Labrie
South Berkshire Educational Collaborative
Main Street
P.O. Box 631
Stockbridge, MA 01262
(413) 298-3614

# Database Technology as a Curriculum Tool

# South Coast Educational Collaborative

**Curriculum areas:**
all

**Grade levels:**
1 through 12

**Equipment:**
Apple IIe computer

**Materials:**
AppleWorks, Bank Street Beginner's Filer, and Bank Street School Filer software

**Personnel:**
classroom teachers

**Description:**
Twenty-four teachers participated in this project. The teachers, who represent all grade levels, were selected from the eight districts that are members of the Computer Technology Center. The teachers met weekly, initially receiving intensive training in several different database programs. They subsequently divided into four groups to develop curriculum-based projects using database tools.

Projects on the following topics have been developed: classroom demographics ("Who am I?"), dinosaurs, great leaders, slavery, and the Olympics. In the project's later phase teachers also received continued training, which exposed them to CD-ROM and on-line database access.

**Objectives:**
1. To train teachers in the use of selected database programs.
2. To develop curriculum projects using appropriate database programs.
3. To pilot these curriculum projects in selected classrooms.
4. To revise the curriculum materials and make them available to other schools following the pilot implementation.

**Procedure:**
The first step was to develop a process to recruit and select qualified teachers. Twenty-four teachers from the Computer Technology Center's eight member districts were selected with input from the member districts' superintendents and the Center's faculty advisory committee.

Once selected, the group of teachers met weekly for ten weeks to learn database use and become familiar with several different programs. Teachers quickly achieved fluency with the selected database programs. Once they showed competence in database use, teachers were divided into four groups to develop classroom projects in specific curriculum areas.

**Recommendations:**
In implementing a program like this, it is important to allow participants to develop their own projects. This makes it possible for teachers to integrate the computer tools with the existing curriculum. Also, this approach fosters a greater investment in the success of the project.

It is important to allow time for the discussion and false starts that will inevitably occur. Participants should be allowed to make mistakes in initially structuring their projects, so they can build sounder models after the first trial run.

Managing the program as a cross-district program has had a very beneficial side effect. Teachers from different districts have developed relationships that will lead to continued cooperation and sharing long after this program is over.

**Materials available:**
a book that details the projects, with lesson plans and handouts

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Martin Huntley
Computer Technology Center
c/o North Middle School
Whetstone Hill Road
Somerset, MA 02726
(617) 672-2060

# Distance Learning Project

# The Education Cooperative

**Curriculum areas:**
all

**Grade levels:**
10 through 12

**Equipment:**
cameras, monitors, microphones, modulation equipment

**Personnel:**
teachers, administrators, staff from cable television company

**Description:**
The project involved setting up an interactive cable system between Needham and Wayland in order to share instructional expertise between the two towns.

**Objective:**
To cooperatively design a cable conferencing studio.

**Procedure:**
First, the cable television company was contacted in order to determine what should be purchased. Then, the studio in Wayland was built and modulation/demodulation equipment was installed. In the meantime, teams of teachers met to develop an interesting and useful seminar. Finally, classes were given. Students were involved in doing some background course work and meeting with the teachers prior to filming.

**Recommendations:**
This technology can be useful in many situations. It can help low-incidence courses become more available to students in many towns. At some point, this technology may aid students who are unable to attend classes. By using this technology, students throughout a state would be able to receive equal education even if their school district cannot provide certain courses.

Educators can prepare for the advent of this technology by being open to teaching a larger audience in remote sites. The benefits of this project were the wonderful experiences teachers had working together. Districts should bear in mind, however, that a project like this requires sophisticated equipment, significant funding and implementation time.

**Materials available:**
videotape showing the use of this technology

**Grant type:**
Chapter 188 Educational Technology Grant

**Contact:**
Gail Ross-McBride
The Education Cooperative (TEC)
50 Kingsbury Street
Wellesley, MA 02181
(617) 237-3028

**Chapter 188 Educational Technology Advisory Council**

Beth Lowd, Chair
Louis Buscone
David Clayman
Mary Ellen Cronin
Susan Friel
Lee Chester Garron
Adeline Naiman
Michael Pelletier
Robert Richardson

**Title II Dissemination Advisory Committee**

Frederick Andelman
Martin Badoian
Gary Baker
Joseph Balsama
Anthony Bent
Denise Blumenthal
Tom Carroll
Mary Claffey
Richard Cooper
Mary E. Cocoran
Helen Cummings
Frank Digiammarino
Nancy Dube
Rosalyn Frank
Allen Gilpatrick
Mark Goulet
Shirley Hall
Earle Hancock
Jane Hawes
Mary Hayes
Barbara Krysiak
Felicia Tsang Lee
Kathleen Livingston
Patrick Loconto
Paul Lyons
Warren Manhard
Marty Martinian
Joseph Pedullo
John Phillipo
Chuck Radlo
Rob Richardson
Kathleen Riordan
Joyce Sager
Shari Sprong
Russ Stanhope
Nan Stein
Jim Terlizzi
Carole Thomson
Al Trocchi
Bob Tucker
Joy M. Wallace
George Weygand
Doreen Wilkinson
Sandra Wood